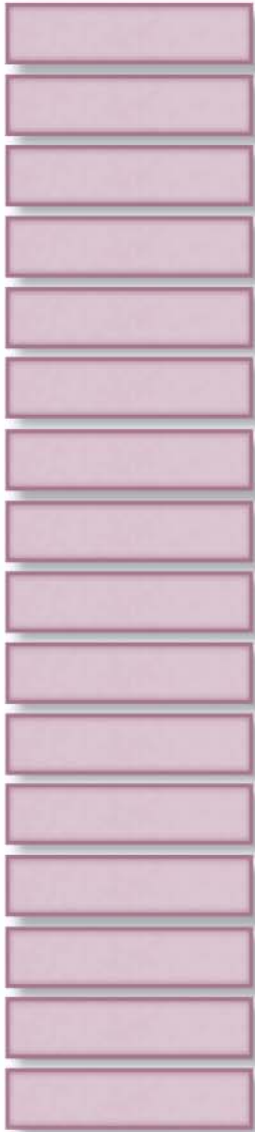


ISTEP+

GQE Item Sampler



Indiana Statewide Testing for Educational Progress



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Dear Colleague:

In the *GQE Item Sampler*, you will find information designed to guide, direct, and clarify your efforts in preparing for and administering Indiana's Graduation Qualifying Exam (GQE). We want your students to be as well-prepared as possible to meet the GQE requirement; for the vast majority of students, that means passing the GQE.

As high school teachers, your knowledge of the Indiana Academic Standards assessed on the GQE is very important. Your ability to use that knowledge in your instructional strategies with your students and your familiarity with all aspects of test administration are critically important to students' success on the test and with the rest of their coursework. You influence their choices and futures as well as their academic achievement.

We expect that the information provided in this sampler will help you in your ongoing efforts to educate and motivate your students. Please see the Department of Education's Web site at **www.doe.state.in.us** for additional information about Indiana Statewide Testing for Educational Progress-Plus (*ISTEP+*).

Thank you for all you do to prepare students to meet the challenges they will face in this ever-changing and challenging world.

Sincerely,

A handwritten signature in cursive script that reads "Dr. Suellen Reed".

Dr. Suellen Reed
Superintendent of Public Instruction

Introduction

The *GQE Item Sampler* provides information about the *ISTEP+* Graduation Qualifying Examination (GQE) for students, parents, educators, and others affected by the examination. The information in this sampler has been compiled by the Division of School Assessment of the Indiana Department of Education and CTB/McGraw-Hill, the test development contractor for Indiana.

The test items (questions) in this sampler are intended to provide teachers with specific examples of how the different standards will be measured on the test. These examples can serve as models when teachers are constructing test items for classroom assessment. The sampler is not a practice test. This book includes sample test items and scoring rubrics for both English/Language Arts and Mathematics that reflect the Indiana Academic Standards adopted in November 2000. All items included in this book are samples only and **not** actual items. The scoring rubrics presented for Language Conventions and Writing Applications are the actual rubrics used to score the writing prompts and/or extended-response items for English/Language Arts. All samples are representative of the types of items that students taking the GQE will be required to answer.

A condensed version of the Indiana Academic Standards is included in this sampler. These are the skills that all Indiana students are required to know and be able to perform. Complete copies of the Indiana Academic Standards can be obtained from the Department of Education's Web site at www.doe.state.in.us or directly from the Department of Education.

Frequently Asked Questions

Q. What is the GQE requirement?

- A. Indiana students must demonstrate Grade 9 skills in English/Language Arts and Mathematics, in addition to completing all other state and local graduation requirements, in order to be eligible to receive a high school diploma.

A student may meet this requirement in one of three ways:

1. by passing the Grade 10 *ISTEP+* GQE; or
2. by completing all directed and elective Core 40 courses with a C or better; or
3. by attaining a 95 percent high school attendance rate and a C average in the 24 credit hours that are required of all Indiana high school graduates; taking the test at least once every year, participating in remediation opportunities, demonstrating Grade 9 skills in English/Language Arts and Mathematics through other assessments or classroom work, and meeting other criteria required by IC 20-10.1-16-13.

Q. How can a student prepare for the test?

- A. Students can prepare for the GQE, or any test, by keeping current with their schoolwork. Parents should attend parent-teacher conferences and be aware of how well their child is doing in each course. Teachers, too, are instrumental in preparing students to succeed on the GQE. This sampler was designed to assist teachers by providing a model for how the Indiana Academic Standards will be assessed on the GQE.

Q. Who is a Grade 10 student?

- A. A definition has been adopted by the Indiana State Board of Education to help schools determine which students are eligible to take the GQE. The complete Grade 10 Definition (511 IAC 5-3-4) can be found at www.doe.state.in.us under "Important *ISTEP+* Documents."

Q. How many times may students take the GQE?

- A. A student may take the GQE until the student passes or graduates through one of the two other available alternatives. The GQE is available to students at least five times during the course of a typical high school experience—once in Grade 10, twice in Grade 11, and twice in Grade 12.

Q. *On a retest, what part of the examination will a student take?*

A. Retests will include only the content area(s) that the student has not passed.

Q. *What if my child is enrolled in special education?*

A. All students are required to demonstrate that they have met the achievement standards measured by the GQE in order to graduate. If your child received instructional accommodations in classroom testing situations, he or she can expect to receive similar accommodations during testing.

If a student's case conference committee determines that the GQE is not an appropriate test for a student, then the student should participate in the alternate assessment (ISTAR: Indiana Standards Tool for Alternate Reporting). Participating in the alternate assessment does not meet the GQE requirement.

Q. *How are accommodations determined, and who makes the determination?*

A. Accommodations for testing conditions are determined by the case conference committee for a special education student, and by the individual service plan for a student with disabilities who receives accommodations under Section 504 of the Rehabilitation Act of 1973. Accommodations that are used for classroom assessments in a particular content area are generally appropriate for use during the *ISTEP+* assessment of the same content area.

Q. *Does the GQE requirement apply to a student whose primary language is a language other than English?*

A. Every student who intends to receive an Indiana high school diploma must take the GQE and meet the GQE standards in one of the three ways available. (See the first question on page 7.)

Q. *May a student whose primary language is a language other than English receive accommodations on the GQE?*

A. Extended time is available for Limited English Proficient (LEP) students. If students also have an Individualized Education Program or Section 504 plan, then they may be eligible for other accommodations. Decisions on whether LEP students will receive extra time must be made and documented on an individual basis.

Q. *When is the GQE administered?*

- A. The GQE is administered over a three-day period in September. The test must be given in the order prescribed by the Department of Education. GQE retests are administered in March, and are available to juniors, seniors, and adults. No makeup days are offered for the administration of the GQE.

Q. *When are test results returned to schools?*

- A. Fall 2004 test results cannot be returned to schools until cut scores have been approved by the State Board of Education. The Cut Score Setting for these results will be held in January 2005. In subsequent years, Grade 10 results will be returned with all other results in late November or early December. Spring retest results will be returned to schools in early May.

Q. *How and where are GQE tests scored?*

- A. Multiple-choice (selected-response) items are scored by machine in Salinas, California. Open-ended (constructed-response) items are graded by specially trained scorers who must hold at least a bachelor's degree; however, many also hold advanced degrees and teaching licenses. The scoring of open-ended items takes place in Indiana following strict scoring rules. Scores are based on correct answers as well as on content, level of understanding of items, and ability to communicate answers. Every answer to an open-ended item on the GQE is read and scored independently by at least two scorers.

Q. *What if I have additional questions about the GQE?*

- A. Your school officials will be able to answer most of your questions regarding students enrolled in special programs and other questions you may have about Indiana's GQE.

If you have additional questions, you may telephone the toll-free hotline for the Indiana Department of Education at 888-544-7837 (888-54ISTEP), email the department at istep@doe.state.in.us, or go to the department Web site at www.doe.state.in.us/istep/welcome.html.

Q. *What is appropriate test preparation?*

- A. This sampler provides sample items so that teachers are able to see some of the ways in which the Indiana Academic Standards are assessed. On the following page is a table that identifies appropriate and inappropriate test-preparation strategies.

TEST PREPARATION FOR *ISTEP+*

Is this an ethical practice?	YES	NO
developing instructional objectives based on the Indiana Academic Standards	X	
making changes in instruction that enhance student skills, learning, and achievement	X	
training students in appropriate test taking strategies	X	
motivating students to perform well on the assessment by talking to students, their parents, and other teachers	X	
using released <i>ISTEP+</i> items (only applied skills items that are posted online) for professional development purposes, instructional purposes, and as examples in the classroom	X	
providing to all concerned adequate notice of upcoming assessments	X	
developing curricula or instructional objectives based upon specific <i>ISTEP+</i> items (multiple-choice questions)		X
preparing student guides or classroom assessments that are based solely on specific items from <i>ISTEP+</i> , such that they may be considered a comparable or alternative form of the state assessment (except the released applied skills items posted online)		X
copying English/Language Arts or Mathematics items from the assessment and using them for, or incorporating them into, language arts or mathematics instruction (except the released applied skills items posted online)		X
presenting items from any part of the test before test administration		X
making a copy of any portion of <i>ISTEP+</i> (except the released applied skills items posted online) for use in instructional planning, classroom instruction, or assessment		X
sharing the actual <i>ISTEP+</i> test (except the released applied skills items posted online) with parents, teachers, or others in a public forum, which is a violation of test security and could result in the invalidation of students' test results		X
buying, developing, or promoting the use of any extensive test practice/preparation materials that serve as a parallel form of <i>ISTEP+</i> or that may contain specific <i>ISTEP+</i> items or tasks (except for the released applied skills items posted online)		X



English/Language Arts

GRADE 9 INDIANA ACADEMIC STANDARDS

- ❑ **READING: Word Recognition, Fluency, and Vocabulary Development**
Students apply their knowledge of word origins (words from other languages or from history or literature) to determine the meaning of new words encountered in reading and use those words accurately.
- ❑ **READING: Reading Comprehension**
Students read and understand grade-level-appropriate material. They analyze the organizational patterns and evaluate authors' arguments and positions. In addition to regular classroom reading, students read a wide variety of classic and contemporary literature, poetry, magazines, newspapers, reference materials, technical resources, and online information.
- ❑ **READING: Literary Response and Analysis**
Students read and respond to grade-level-appropriate historically or culturally significant works of literature that reflect and enhance their study of history and social science. They conduct in-depth analyses of the themes of these works.
- ❑ **WRITING: Writing Process**
Students discuss ideas for writing with other writers. They write coherent and focused essays that show a well-defined point of view and tightly reasoned argument. Students progress through the stages of the writing process (prewriting, writing, editing, and revising).
- ❑ **WRITING: Writing Applications**
Students combine the rhetorical strategies of narration, exposition, persuasion, and description to produce texts of at least 1,500 words. Students begin to write documents related to career development. Student writing demonstrates a command of Standard English and the research, organizational, and drafting strategies outlined in Standard 4—Writing Process. Writing demonstrates an awareness of the audience (intended reader) and purpose for writing.
- ❑ **WRITING: Written English Language Conventions**
Students write using Standard English conventions.

NOTE: This page provides an overview of the Indiana Academic Standards. The IDOE Web site at www.doe.state.in.us contains a complete version of the Indiana Academic Standards, which may be downloaded.

Passages



Memories

Putting aside thoughts of his last day of vacation in New Mexico, Steve looked once more at the menu and ordered the farmer's breakfast: three eggs, ham, hash browns, and toast. He was glad to have seen White Sands again, but now he was anxious to return to Denver.

"Hello, Steve! Remember me?" A tall young woman in blue jeans sat down on the stool next to him.

"Jill!" He smiled, noticing the sparkling eyes of an old friend.

"Are your folks still here? I thought they had moved to Los Angeles."

"They stayed here," she said, "and New Mexico Julys are still the same."

"I met a number of the kids from high school at the parade on Sunday," Steve added. "Everyone has changed so much in the last eight years." Still reflecting on the past, he said, "The last time I saw you was on our geology field trip to Carlsbad Caverns. What a fantastic trip! I've been back many times since then."

Jill smiled. "So have I."

"Know what I remember the most?" remarked Steve. "Those beautiful stalactites, calcium icicles hanging from the ceiling; they looked like pearl and alabaster-colored needles that were smooth and hard as ice."

"Do you remember how frightened I was of the bats?" Jill laughed.

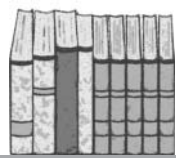
"That's okay. Everyone was awed by the bats, even the ranger."

Steve recalled how their class had stood waiting outside the caves. The air had cooled rapidly, and the last ember-glow of the sun had turned the sky above the caverns a brilliant orange-red. Then a slow, black cloud had issued from the caverns and ascended into the heavens. They both shuddered at the memory of that huge "cloud" of bats.

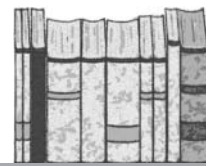
"What are you doing now, Steve?" asked Jill.

"That trip had quite an effect on me," replied Steve. "I'm a high school geology teacher in Denver. What about you?"

"Those caves had their effect on me, too," Jill replied. "I'm now a ranger for the National Parks, and Carlsbad Caverns is my home base!"



Our Library



Our public library must be expanded. Our city librarian, Henry Garfield, says, “We are not considering hiring more employees. Our study shows we have adequate personnel. Our immediate need is for additional space.”

Patrons often look up a reference in the card catalog or on the computer only to find it stamped “Stored in Basement of Old City Hall.” The patron must then take the time to fill out a request slip and must wait several days for the book to arrive. The reference department is so crowded that frequently used volumes are piled on the floor. Expensive books are sometimes damaged as they wait to be placed on shelves.

Volunteers have made oral-history tape recordings of the personal recollections of many of our older citizens, but we need space to store and use the recordings. Also, with more room the periodical section could be expanded. Current magazines would help many of you Main Street merchants predict future business trends.

Bringing more patrons to the library will bring more foot traffic to Main Street, and increased sales will surely compensate for the small increase in taxes required to pay for this bond issue. Merchants might even consider this tax as part of their advertising budgets.

The question is not “Can we afford to expand our library?” It is “Can we afford *not* to?”

Letter to the Editor

Dear Editor,

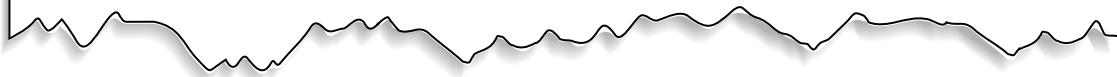
I'm very disappointed with the school board's recent proposal to eliminate the junior varsity basketball team. Although the team has not had a winning season for the last three years, the board would be wrong to decide that the team and their coach do not deserve continued support. I realize that some players may never develop well enough to make the varsity team, but they should not be denied the opportunity for interscholastic competition just because they are not the best players. Also, playing on the junior varsity is excellent training for the varsity, since both teams use many of the same plays.

There is enough money in the

present budget to finance the junior varsity team. Basketball for students is more important than luxuries for the staff like sending school board members to expensive conferences, paying for the superintendent's car, and giving teachers time off to attend committee meetings.

The basketball schedule for the next season has been adopted. All the other high schools in the league will be inconvenienced if the junior varsity team is eliminated. Most importantly, the junior varsity players will be hurt. When the school board votes next week, I hope they will reconsider their proposal to eliminate the junior varsity team.

Concerned Parent



Light

X-rays, ultraviolet rays, infrared rays, and radio waves are all forms of radiant energy. The human eye can perceive only a small portion of this spectrum of radiant energy; that segment is called visible light or simply, light.

Light is one of the most important aspects of everyday life. As with the water we drink and the air we breathe, we often take this marvelous phenomenon for granted. Light allows us to see; it gives us fuel and food; it makes life on Earth possible.

From the early 1600s, scientists have debated the nature of light and its movement through space. After using a prism to separate white light into a spectrum of colors (as water drops separate sunlight), Sir Isaac Newton proposed that light is composed of tiny particles that travel in straight lines through space. This theory became known as the corpuscular theory. Around the same time, a Dutchman, Huygens, formulated a theory that light travels in waves, rather than straight lines.

For a hundred years, scientists argued over which theory was correct. Then in 1801, Thomas Young, a British physicist, demonstrated that two light beams, when overlapped, will reinforce each other. Since water waves also behave this way, most scientists accepted Young's experiment as proof of the wavelike nature of light. Finally about 1900, Max Planck, a German scientist, led the way to our present understanding of light. Planck's work showed that light has *both* particle and wave aspects.

As with gravity, the closest we have come to explaining light is to describe its effects and properties. However, experiments continue; and, though our understanding is still incomplete, photography, lasers, solar cells, and other inventions mark our progress in understanding and learning to use light.

Sample Test Items

READING: Word Recognition, Fluency, and Vocabulary Development

Using their knowledge of word origins and context, students are able to determine the meanings of new words and use them correctly.

Number 1 is based on “Memories,” found on page 12.

1 Read this sentence from the story.

Then a slow, black cloud had issued from the caverns and ascended into the heavens.

Which of these dictionary definitions of *issue* BEST fits the way the word is used in the sentence?

- A publish
- B terminate
- ✓ C come out
- D profit from

Number 2 is based on “Our Library,” found on page 13.

2 Read this sentence from “Our Library.”

Bringing more patrons to the library will bring more foot traffic to Main Street, and increased sales will surely compensate for the small increase in taxes required to pay for this bond issue.

As used in this sentence, *compensate* means the SAME as

- A compete
- B work
- C feel sorry
- ✓ D make up

READING: Reading Comprehension

Students are able to understand and analyze the structural features of informational materials. They can comprehend and analyze grade-level-appropriate texts and critique the logic and sequence of those texts. Further, they are able to compare the content of similar texts and ask questions that will lead to better understanding of a given text.

These skills can be assessed by either selected-response (multiple-choice) or constructed-response (open-ended) items.

Use the following table to do Numbers 3 and 4.

FIVE COSTLY NATURAL DISASTERS IN UNITED STATES HISTORY
(in billions of dollars)

Event	Year	Cost
20-State Winter Storm	1993	\$1.8
Hurricane Andrew	1992	\$20.0
Hurricane Betsy	1965	\$6.0
Hurricane Hugo	1989	\$7.0
Northridge, CA, Earthquake	1994	\$12.0

3 What information can you learn from this chart?

- A The 20-State Winter Storm caused more damage than Hurricane Betsy.
- B Hurricane Betsy is the most recent hurricane on the chart.
- ✓ C The Northridge, CA, Earthquake caused more damage than Hurricane Hugo.
- D Hurricane Hugo is the costliest hurricane on the chart.

4 Which of these proposed changes would MOST improve the chart's clarity?

- ✓ A Order the chart by the year the events occurred.
- B Add the months and days each event occurred.
- C Add the zeroes for the billions of dollars in the "Cost" column.
- D Change the title to "Five Costly Events in United States History."

Number 5 is based on "Our Library," found on page 13.

- 5** Give TWO specific pieces of information that the merchants might want to research before they decide whether or not to support expansion of the library.

1) _____

2) _____

Exemplars:

- the value of books damaged by improper storage
- the cost of periodicals that would benefit the business community
- the cost of staff time spent retrieving books from remote storage
- the cost of tax per business to pay for the bond issue
- any surveys/studies done about "increased foot traffic" to surrounding businesses from expanded libraries in other communities
- other relevant text-based research issue

Rubric:

- 2 points** versions of two exemplars
- 1 point** version of one exemplar
- 0 points** other

Numbers 6 and 7 are based on "Light," found on page 15.

6 According to the passage, in what way was Newton's theory of light similar to Planck's?

- A** Both theories proved that light does not move through space.
- B** Both theories proved that light travels in waves.
- C** Both theories maintained that waves of light reinforce each other.
- ✓ **D** Both theories suggest that light is composed of particles.

7 Complete this comparison chart using information from the passage to fill in the blanks.

Scientist	Idea About Light	Status of Idea
Newton	particles	theory
Huygens		theory
	waves	
Planck		led to present understanding

Exemplars:

- | Scientist | Idea About Light | Status of Idea |
|-----------|---------------------------------|------------------------------|
| Newton | particles | theory |
| Huygens | <i>waves</i> | theory |
| Young | waves | <i>[accepted as] proof</i> |
| Planck | <i>both waves and particles</i> | led to present understanding |

Rubric:

2 points 4 correctly filled in blanks

1 point 2 or 3 correctly filled in blanks

0 points other

Numbers 8 through 10 are based on "Our Library," found on page 13.

8 What does the writer MOST LIKELY want the reader to do?

- ✓ **A** Vote for a bond issue.
- B** Make use of the library facilities.
- C** Make realistic business decisions.
- D** Donate books to the reference section.

9 The writer MOST LIKELY quotes Henry Garfield because she

- A** wants Garfield to be re-elected
- B** believes Garfield is ambitious
- ✓ **C** considers Garfield to be a good authority
- D** knows Garfield is familiar with Main Street

10 Give TWO points the writer makes to show that the library is essential to the town.

- 1) _____

- 2) _____

Exemplars:

- The library contains taped recollections from the town's older citizens.
- An active library will contribute to the economic welfare of the town.
- Current magazines will help local merchants predict business trends.
- other relevant text-based response

Rubric:

- 2 points** versions of two exemplars
- 1 point** version of one exemplar
- 0 points** other

The following extended-response item assesses as its Reading Comprehension element the student's ability to evaluate and support an argument made by another writer. The extended response is also evaluated for Language Conventions using the four-point rubric on page 22, and for Writing Applications using the four-point rubric on page 23 (overview) and pages 24 through 27 (detailed rubrics).

Number 11 is based on "Letter to the Editor," found on page 14.

11 Suppose you are the editor responding to this letter and you are convinced that the parent has a legitimate argument.

Write a persuasive essay in which you explain the importance of keeping money in the budget for a junior varsity basketball program. **In your persuasive essay, be sure to include at least TWO details from "Letter to the Editor" to support your opinion.**

SCORED FOR READING

Exemplars:

- No one should be denied the opportunity to participate in sports.
- Playing on junior varsity is excellent training for the varsity.
- There is enough money in the budget.
- Basketball is more important than luxuries for the staff.
- The basketball schedule for next year has already been adopted.
- All other high schools in the league would be inconvenienced.
- Our junior varsity players would be disappointed.
- other relevant text-based response

Reading Comprehension Rubric:

2 points response includes versions of two exemplars

1 point response includes version of one exemplar

0 points other

ALSO SCORED FOR WRITING

Apply 4-point Writing Applications Rubric, Grades 6–12

Apply 4-point Language Conventions Rubric, Grades 9–12

Language Conventions Rubric

Grades 9–12

Students will apply to their writing the Standard English conventions defined in the Indiana Academic Standards for their grade and for all previous grades.

Score	Does the writing sample exhibit a superior command of language skills?
4	<p>A Score Point 4 paper exhibits a superior command of written English language conventions. The paper provides evidence that the student has a thorough control of the concepts outlined in the Indiana Academic Standards associated with the student's grade level. In a Score Point 4 paper, there are no errors that impair the flow of communication. Errors are generally of the first-draft variety or occur when the student attempts sophisticated sentence construction.</p> <ul style="list-style-type: none"> • Does the writing sample demonstrate a superior command of capitalization conventions? • Does the writing sample demonstrate a superior command of the mechanics of punctuation? • Does the writing sample demonstrate a superior command of grade-level-appropriate spelling? • Does the writing sample demonstrate a superior command of grammar and Standard English usage? • Does the writing sample demonstrate a superior command of paragraphing? • Does the writing sample demonstrate a superior command of sentence structure by not using run-on sentences or sentence fragments?
Score	Does the writing sample exhibit a good control of language skills?
3	<p>In a Score Point 3 paper, errors are occasional and are often of the first-draft variety; they have a minor impact on the flow of communication.</p> <ul style="list-style-type: none"> • Does the writing sample demonstrate a good control of capitalization conventions? • Does the writing sample demonstrate a good control of the mechanics of punctuation? • Does the writing sample demonstrate a good control of grade-level-appropriate spelling? • Does the writing sample demonstrate a good control of grammar and Standard English usage? • Does the writing sample demonstrate a good control of paragraphing? • Does the writing sample demonstrate a good control of sentence structure by only occasionally using run-on sentences or sentence fragments?
Score	Does the writing sample exhibit a fair control of language skills?
2	<p>In a Score Point 2 paper, errors are typically frequent and may occasionally impede the flow of communication.</p> <ul style="list-style-type: none"> • Does the writing sample demonstrate a fair control of capitalization conventions? • Does the writing sample demonstrate a fair control of the mechanics of punctuation? • Does the writing sample demonstrate a fair control of grade-level-appropriate spelling? • Does the writing sample demonstrate a fair control of grammar and Standard English usage? • Does the writing sample demonstrate a fair control of paragraphing? • Does the writing sample demonstrate a fair control of sentence structure by frequently using run-on sentences or sentence fragments?
Score	Does the writing sample exhibit a minimal or less than minimal control of language skills?
1	<p>In a Score Point 1 paper, errors are serious and numerous. The reader may need to stop and reread part of the sample and may struggle to discern the writer's meaning.</p> <ul style="list-style-type: none"> • Does the writing sample demonstrate a minimal control of capitalization conventions? • Does the writing sample demonstrate a minimal control of the mechanics of punctuation? • Does the writing sample demonstrate a minimal control of grade-level-appropriate spelling? • Does the writing sample demonstrate a minimal control of grammar and Standard English usage? • Does the writing sample demonstrate a minimal control of paragraphing? • Does the writing sample demonstrate a minimal control of sentence structure by using many run-on sentences or sentence fragments?

NOTE: The elements of this rubric are applied holistically; no element is intended to supersede any other element. The variety and proportion of errors in relation to the length of the writing sample are considered. A very brief paper consisting of two or three sentences may receive no more than 2 score points.

These scoring rubrics are used for students tested on the fall *ISTEP+* assessment in Grades 9–12.

Extended Response Writing Applications Overview

Grades 6–12

Score	Does the writing sample
4	<ul style="list-style-type: none"> • fully accomplish the task? • include many relevant ideas? • organize ideas logically? • exhibit very good word usage? • demonstrate very good writing technique? • demonstrate effective adjustment of language and tone to task and reader?
Score	Does the writing sample
3	<ul style="list-style-type: none"> • accomplish the task? • include relevant ideas? • organize ideas logically? • exhibit good word usage? • demonstrate good writing technique? • demonstrate an attempt to adjust language and tone to task and reader?
Score	Does the writing sample
2	<ul style="list-style-type: none"> • minimally accomplish the task? • include some relevant ideas? • exhibit an attempt to organize ideas logically? • exhibit ordinary word usage? • demonstrate adequate writing technique? • demonstrate an attempt to adjust language and tone to task and reader?
Score	Does the writing sample
1	<ul style="list-style-type: none"> • only partially accomplish or fail to accomplish the task? • include few relevant ideas? • exhibit a minimal attempt to organize ideas logically? • exhibit minimal word usage? • demonstrate minimal or less than minimal writing technique? • demonstrate language and tone that may be inappropriate to task and reader?

NOTE: This chart is only a brief summary of the score points. It is not appropriate to use this summary as the sole tool in scoring student papers. The more in-depth Extended Response Writing Applications Rubric is used for the actual scoring of *ISTEP+* student papers.

These scoring rubrics are used for students tested on the fall *ISTEP+* assessment in Grades 6–12.

Extended Response Writing Applications Rubric

Grades 6–12

SCORE POINT 4
A Score Point 4 paper represents a solid performance. It fully accomplishes the task.
Ideas and Content
<p>Does the writing sample fully accomplish the task (e.g., support an opinion, summarize, tell a story, or write an article)? Does it</p> <ul style="list-style-type: none"> • present a unifying theme or main idea without going off on tangents? • stay focused on topic and task? <p>Does the writing sample include many relevant ideas? Does it</p> <ul style="list-style-type: none"> • provide ample information and more than adequate supporting details that are developed? • explore many facets of the topic?
Organization
<p>Are the ideas in the writing sample organized logically? Does the writing</p> <ul style="list-style-type: none"> • present a meaningful, cohesive whole with a beginning, a middle, and an end (i.e., include a solid introduction and conclusion)? • progress in an order that enhances meaning of text? • include smooth transitions (e.g., use topic sentences) between sentences and paragraphs to enhance meaning of text? (Writing may have an occasional lapse.)
Style
<p>Does the writing sample exhibit very good word usage? Does it</p> <ul style="list-style-type: none"> • include vocabulary to make explanations detailed and precise, descriptions rich, and actions clear and vivid? • demonstrate control of vocabulary? <p>Does the writing sample demonstrate very good writing technique?</p> <ul style="list-style-type: none"> • Is the writing very fluent? • Does it include varied sentence patterns, including complex sentences? • Does it demonstrate use of writer's techniques (e.g., literary conventions such as imagery and dialogue and/or literary genres such as humor and suspense)?
Voice
<p>Does the writing sample demonstrate effective adjustment of language and tone to task and reader? Does it</p> <ul style="list-style-type: none"> • exhibit appropriate register (e.g., formal, personal, or dialect) to suit task? • demonstrate a sense of audience? • exhibit an original perspective (e.g., authoritative, lively, and/or exciting)?

NOTE: These scoring rubrics are used for students tested on the fall *ISTEP+* assessment in Grades 6–12.

Extended Response Writing Applications Rubric

Grades 6–12

SCORE POINT 3
<p>A Score Point 3 paper represents a good performance. It accomplishes the task, but generally needs to exhibit more development, better organization, or a more sophisticated writing style to receive a higher score.</p>
<p>Ideas and Content</p> <p>Does the writing sample accomplish the task (e.g., support an opinion, summarize, tell a story, or write an article)? Does it</p> <ul style="list-style-type: none"> • present a unifying theme or main idea? (Writing may include minor tangents.) • stay mostly focused on topic and task? <p>Does the writing sample include relevant ideas? Does it</p> <ul style="list-style-type: none"> • include sufficient information and supporting details? (Details may not be fully developed; ideas may be listed.) • explore some facets of the topic?
<p>Organization</p> <p>Are the ideas in the writing sample organized logically? Does the writing</p> <ul style="list-style-type: none"> • present a meaningful whole with a beginning, a middle, and an end despite an occasional lapse (e.g., a weak introduction or conclusion)? • generally progress in an order that enhances meaning of text? • include transitions between sentences and paragraphs to enhance meaning of text? (Transitions may be rough, although some topic sentences are included.)
<p>Style</p> <p>Does the writing sample exhibit good word usage? Does it</p> <ul style="list-style-type: none"> • include vocabulary that is appropriately chosen, with words that clearly convey the writer's meaning? • demonstrate control of basic vocabulary? <p>Does the writing sample demonstrate good writing technique?</p> <ul style="list-style-type: none"> • Is the writing fluent? • Does it exhibit some varied sentence patterns, including some complex sentences? • Does it demonstrate an attempt to use writer's techniques (e.g., literary conventions such as imagery and dialogue and/or literary genres such as humor and suspense)?
<p>Voice</p> <p>Does the writing sample demonstrate an attempt to adjust language and tone to task and reader? Does it</p> <ul style="list-style-type: none"> • generally exhibit appropriate register (e.g., formal, personal, or dialect) to suit task? (The writing may occasionally slip out of register.) • demonstrate some sense of audience? • attempt an original perspective?

NOTE: These scoring rubrics are used for students tested on the fall *ISTEP+* assessment in Grades 6–12.

Extended Response Writing Applications Rubric

Grades 6–12

SCORE POINT 2	
A Score Point 2 paper represents a performance that minimally accomplishes the task. Some elements of development, organization, and writing style are weak.	
Ideas and Content	
<p>Does the writing sample minimally accomplish the task (e.g., support an opinion, summarize, tell a story, or write an article)? Does it</p> <ul style="list-style-type: none"> • attempt a unifying theme or main idea? • stay somewhat focused on topic and task? <p>Does the writing sample include some relevant ideas? Does it</p> <ul style="list-style-type: none"> • include some information with only a few details, or list ideas without supporting details? • explore some facets of the topic? 	
Organization	
<p>Is there an attempt to logically organize ideas in the writing sample? Does the writing</p> <ul style="list-style-type: none"> • have a beginning, a middle, or an end that may be weak or absent? • demonstrate an attempt to progress in an order that enhances meaning? (Progression of text may sometimes be unclear or out of order.) • demonstrate an attempt to include transitions? (Are some topic sentences used? Are transitions between sentences and paragraphs weak or absent?) 	
Style	
<p>Does the writing sample exhibit ordinary word usage? Does it</p> <ul style="list-style-type: none"> • contain basic vocabulary, with words that are predictable and common? • demonstrate some control of vocabulary? <p>Does the writing sample demonstrate adequate writing technique?</p> <ul style="list-style-type: none"> • Is the writing generally fluent? • Does it contain mostly simple sentences (although there may be an attempt at more varied sentence patterns)? • Is it generally ordinary and predictable? 	
Voice	
<p>Does the writing sample demonstrate an attempt to adjust language and tone to task and reader? Does it</p> <ul style="list-style-type: none"> • demonstrate a difficulty in establishing a register (e.g., formal, personal, or dialect)? • demonstrate little sense of audience? • generally lack an original perspective? 	

NOTE: These scoring rubrics are used for students tested on the fall *ISTEP+* assessment in Grades 6–12.

Extended Response Writing Applications Rubric

Grades 6–12

SCORE POINT 1
<p>A Score Point 1 paper represents a performance that only partially accomplishes or fails to accomplish the task. Some responses may exhibit difficulty maintaining a focus. Others may be too brief to provide sufficient development of the topic or evidence of adequate organizational or writing style.</p>
<p>Ideas and Content</p> <p>Does the writing sample only partially accomplish or fail to accomplish the task (e.g., support an opinion, summarize, tell a story, or write an article)?</p> <ul style="list-style-type: none"> • Writing may attempt a main idea, or the main idea may be difficult to discern. • Does the writing sometimes lose focus or ineffectively establish focus? <p>Does the writing sample include few relevant ideas?</p> <ul style="list-style-type: none"> • Does the writing sample include little information and few or no details? • Writing may explore only one or two facets of the topic.
<p>Organization</p> <p>Is there a minimal attempt to logically organize ideas in the writing sample?</p> <ul style="list-style-type: none"> • Does the writing have only one or two of the three elements: beginning, middle, and end? • Is the writing sometimes difficult to follow? (Progression of text may be confusing, unclear, or difficult to discern.) • Are transitions weak or absent (e.g., few or no topic sentences)?
<p>Style</p> <p>Does the writing sample exhibit minimal word usage? Does it</p> <ul style="list-style-type: none"> • contain limited vocabulary? (Words may be used incorrectly.) • demonstrate minimal or less than minimal control of vocabulary? <p>Does the writing sample demonstrate minimal or less than minimal writing technique?</p> <ul style="list-style-type: none"> • Does the writing exhibit some or little fluency? • Does it rely mostly on simple sentences or demonstrate problems with sentence patterns? • Is it often repetitive, predictable, or dull?
<p>Voice</p> <p>Does the writing sample demonstrate language and tone that may be inappropriate to task and reader? Does it</p> <ul style="list-style-type: none"> • demonstrate use of a register inappropriate to the task (e.g., slang or dialect in a formal setting)? • demonstrate little or no sense of audience? • lack an original perspective?

NOTE: These scoring rubrics are used for students tested on the fall *ISTEP+* assessment in Grades 6–12.

READING: Literary Response and Analysis

Students are asked to read and respond to grade-level-appropriate literature in a wide variety of forms, including drama, literary essays and memoirs, poetry, and fiction. Students are able to understand how different aspects, such as plot, setting, characters and genre (form), work together to create further meaning. Students are also expected to consider literary works in the context of both their historical periods and in comparison with other works of similar genre or theme.

Numbers 12 through 15 are based on "Memories," found on page 12.

- 12** In the middle of the story when Steve mentions that he's been back to Carlsbad Caverns many times, Jill smiles and responds, "So have I."

Jill's words are an example of

- ☒ **A** foreshadowing
- B** imagery
- C** sarcasm
- D** symbolism

- 13** Which of these events happened FIRST in the lives of the characters?

- A** Jill and Steve meet at the coffee shop.
- B** Jill's parents decide to stay in New Mexico.
- C** Steve gets a job teaching high school in Colorado.
- ☒ **D** Jill and Steve visit Carlsbad Caverns together on a field trip.

- 14** Jill's choice of career is ironic, or against expectations, because

- A** Steve became a geology teacher in Denver
- B** Steve recalls the beauty of the caverns
- ☒ **C** Jill was afraid of the bats at the caverns
- D** Jill prefers summers in Los Angeles

15 Give TWO examples from the story that demonstrate Steve's strong interest in geology.

1) _____

2) _____

Exemplars:

- Steve remembers and describes in vivid detail the geology field trip he took with his class to Carlsbad Caverns eight years ago.
- Steve returned to Carlsbad Caverns many times after his high school field trip.
- Steve became a geology teacher.
- other relevant text-based response

Rubric:

- 2 points** versions of two exemplars
- 1 point** version of one exemplar
- 0 points** other

WRITING: Writing Process

In addition to assessing student writing skills through application of the Writing Applications Rubric (see pages 36 through 41) to extended student writing, *ISTEP+* also assesses the same skills through discrete (stand-alone) selected-response items.

Read this paragraph and use it to do Numbers 16 and 17.

¹ Did you know that shooting stars are actually small particles of space dust similar to gravel or sand? ² Shooting stars are those streaks of light. ³ Those streaks of light blaze through the night sky. ⁴ Shooting stars, or meteors, become visible when they meet up with air molecules in Earth's atmosphere. ⁵ The collision of the dust and air molecules occurs at such high speeds that the dust particles heat up and glow. ⁶ As they are burning, the dust particles appear in the evening sky as shooting stars.

16 Choose the BEST way to combine Sentences 2 and 3.

- A Shooting stars are those streaks of light, and they also blaze through the night sky.
- ✓ B Shooting stars are those streaks of light that blaze through the night sky.
- C Shooting stars are those streaks of light, and shooting stars blaze through the night sky.
- D Shooting stars are those streaks of light and moreover blaze through the night sky.

17 The writer wants to replace the underlined phrase in Sentence 4 with a more formal expression. Which of these is the BEST replacement?

- ✓ A encounter
- B experience
- C undergo
- D undertake

18 The Modern Language Association (MLA) recommends these guidelines for citing works used for reference.

1. Alphabetize unsigned articles according to the first major word of the title.
2. Underline the title of a book.
3. Use quotation marks to indicate the title of an essay, chapter, or article.
4. Include publishing information last.

The student who wrote the paragraph on shooting stars found the information for the paragraph in an unsigned essay in a book. According to the MLA recommendations above, which is the correct way for the student to cite this source?

- A The Complete Guide to the Night Sky. Boston: Aileen, 1984. "Sky Litter."
- ✓ B "Sky Litter." The Complete Guide to the Night Sky. Boston: Aileen, 1984.
- C Boston: Aileen, 1984, "Sky Litter," from The Complete Guide to the Night Sky.
- D Sky Litter from "The Complete Guide to the Night Sky," Boston: Aileen, 1984.

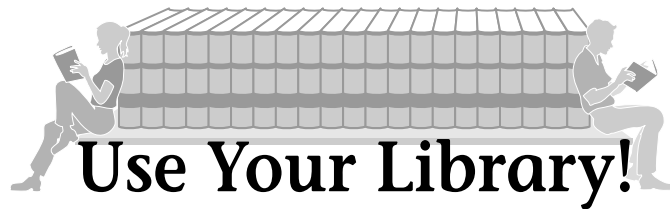
WRITING: Writing Applications

In response to a writing prompt, students must organize their ideas and produce an original narrative composition or an essay. The type of writing required for *ISTEP+* rotates among the following forms: narrative composition, expository essay, and persuasive essay.

Each type of writing has specific characteristics that the student is expected to include. For example, in a persuasive essay, the student should organize ideas in a sustained and effective way and state and defend a position with clear and relevant evidence.

Student writing is evaluated according to the six-point rubric on pages 34 and 35 (overview) and pages 36 through 41 (detailed rubrics). Students' ability to use Standard English in their writing is assessed using the four-point Language Conventions Rubric on page 33.

19



Read the writing prompt below and complete the writing activity.

The library in your community is sponsoring an essay contest. The winning essay will be featured in the local newspaper, and the winner will receive a cash award. All essays must persuade members of the community to make better use of the library.

Write an essay to persuade people in your community to use the library more often. Your essay may focus on books, or it may point out the variety of services the library offers, such as a bookmobile, computer training, and public meeting rooms for community organizations. Give strong, specific details to support your position.

Be sure to include

- what services or benefits the library offers
- why people in the community should use their library more often
- specific, persuasive details
- an introduction, a body, and a conclusion

Language Conventions Rubric

Grades 9–12

Students will apply to their writing the Standard English conventions defined in the Indiana Academic Standards for their grade and for all previous grades.

Score	Does the writing sample exhibit a superior command of language skills?
4	<p>A Score Point 4 paper exhibits a superior command of written English language conventions. The paper provides evidence that the student has a thorough control of the concepts outlined in the Indiana Academic Standards associated with the student's grade level. In a Score Point 4 paper, there are no errors that impair the flow of communication. Errors are generally of the first-draft variety or occur when the student attempts sophisticated sentence construction.</p> <ul style="list-style-type: none"> • Does the writing sample demonstrate a superior command of capitalization conventions? • Does the writing sample demonstrate a superior command of the mechanics of punctuation? • Does the writing sample demonstrate a superior command of grade-level-appropriate spelling? • Does the writing sample demonstrate a superior command of grammar and Standard English usage? • Does the writing sample demonstrate a superior command of paragraphing? • Does the writing sample demonstrate a superior command of sentence structure by not using run-on sentences or sentence fragments?
Score	Does the writing sample exhibit a good control of language skills?
3	<p>In a Score Point 3 paper, errors are occasional and are often of the first-draft variety; they have a minor impact on the flow of communication.</p> <ul style="list-style-type: none"> • Does the writing sample demonstrate a good control of capitalization conventions? • Does the writing sample demonstrate a good control of the mechanics of punctuation? • Does the writing sample demonstrate a good control of grade-level-appropriate spelling? • Does the writing sample demonstrate a good control of grammar and Standard English usage? • Does the writing sample demonstrate a good control of paragraphing? • Does the writing sample demonstrate a good control of sentence structure by only occasionally using run-on sentences or sentence fragments?
Score	Does the writing sample exhibit a fair control of language skills?
2	<p>In a Score Point 2 paper, errors are typically frequent and may occasionally impede the flow of communication.</p> <ul style="list-style-type: none"> • Does the writing sample demonstrate a fair control of capitalization conventions? • Does the writing sample demonstrate a fair control of the mechanics of punctuation? • Does the writing sample demonstrate a fair control of grade-level-appropriate spelling? • Does the writing sample demonstrate a fair control of grammar and Standard English usage? • Does the writing sample demonstrate a fair control of paragraphing? • Does the writing sample demonstrate a fair control of sentence structure by frequently using run-on sentences or sentence fragments?
Score	Does the writing sample exhibit a minimal or less than minimal control of language skills?
1	<p>In a Score Point 1 paper, errors are serious and numerous. The reader may need to stop and reread part of the sample and may struggle to discern the writer's meaning.</p> <ul style="list-style-type: none"> • Does the writing sample demonstrate a minimal control of capitalization conventions? • Does the writing sample demonstrate a minimal control of the mechanics of punctuation? • Does the writing sample demonstrate a minimal control of grade-level-appropriate spelling? • Does the writing sample demonstrate a minimal control of grammar and Standard English usage? • Does the writing sample demonstrate a minimal control of paragraphing? • Does the writing sample demonstrate a minimal control of sentence structure by using many run-on sentences or sentence fragments?

NOTE: The elements of this rubric are applied holistically; no element is intended to supersede any other element. The variety and proportion of errors in relation to the length of the writing sample are considered. A very brief paper consisting of two or three sentences may receive no more than 2 score points.

These scoring rubrics are used for students tested on the fall *ISTEP+* assessment in Grades 9–12.

Writing Applications Overview

Grades 6–12

Score Level	Ideas and Content	Organization
	Does the writing sample	Does the writing sample
6	<ul style="list-style-type: none"> fully accomplish the task? include thorough, relevant, and complete ideas? 	<ul style="list-style-type: none"> organize ideas logically?
5	<ul style="list-style-type: none"> fully accomplish the task? include many relevant ideas? 	<ul style="list-style-type: none"> organize ideas logically?
4	<ul style="list-style-type: none"> accomplish the task? include relevant ideas? 	<ul style="list-style-type: none"> organize ideas logically?
3	<ul style="list-style-type: none"> minimally accomplish the task? include some relevant ideas? 	<ul style="list-style-type: none"> exhibit an attempt to organize ideas logically?
2	<ul style="list-style-type: none"> only partially accomplish the task? include few relevant ideas? 	<ul style="list-style-type: none"> exhibit a minimal attempt to organize ideas logically?
1	<ul style="list-style-type: none"> fail to accomplish the task? include very few relevant ideas? 	<ul style="list-style-type: none"> organize ideas illogically?

NOTE: Chart continues on page 35.

This chart is only a brief summary of the score points. It is not appropriate to use this summary as the sole tool in scoring student papers. The more in-depth Writing Applications Rubric is used for the actual scoring of *ISTEP+* student papers.

These scoring rubrics are used for students tested on the fall *ISTEP+* assessment in Grades 6–12.

Score Level	Style	Voice
	Does the writing sample	Does the writing sample
6	<ul style="list-style-type: none"> exhibit exceptional word usage? demonstrate exceptional writing technique? 	<ul style="list-style-type: none"> demonstrate effective adjustment of language and tone to task and reader?
5	<ul style="list-style-type: none"> exhibit very good word usage? demonstrate very good writing technique? 	<ul style="list-style-type: none"> demonstrate effective adjustment of language and tone to task and reader?
4	<ul style="list-style-type: none"> exhibit good word usage? demonstrate good writing technique? 	<ul style="list-style-type: none"> demonstrate an attempt to adjust language and tone to task and reader?
3	<ul style="list-style-type: none"> exhibit ordinary word usage? demonstrate average writing technique? 	<ul style="list-style-type: none"> demonstrate an attempt to adjust language and tone to task and reader?
2	<ul style="list-style-type: none"> exhibit minimal word usage? demonstrate minimal writing technique? 	<ul style="list-style-type: none"> demonstrate language and tone that may be inappropriate to task and reader?
1	<ul style="list-style-type: none"> exhibit less than minimal word usage? demonstrate less than minimal writing technique? 	<ul style="list-style-type: none"> demonstrate language and tone that may be inappropriate to task and reader?

Writing Applications Rubric

Grades 6–12

SCORE POINT 6
<p>A Score Point 6 paper is rare. It fully accomplishes the task in a thorough and insightful manner and has a distinctive quality that sets it apart as an outstanding performance.</p>
<p>Ideas and Content</p> <p>Does the writing sample fully accomplish the task (e.g., support an opinion, summarize, tell a story, or write an article)? Does it</p> <ul style="list-style-type: none"> • present a unifying theme or main idea without going off on tangents? • stay completely focused on topic and task? <p>Does the writing sample include thorough, relevant, and complete ideas? Does it</p> <ul style="list-style-type: none"> • include in-depth information and exceptional supporting details that are fully developed? • fully explore many facets of the topic?
<p>Organization</p> <p>Are the ideas in the writing sample organized logically? Does the writing</p> <ul style="list-style-type: none"> • present a meaningful, cohesive whole with a beginning, a middle, and an end (i.e., include an inviting introduction and a strong conclusion)? • progress in an order that enhances meaning? • include smooth transitions between ideas, sentences, and paragraphs to enhance meaning of text (i.e., have a clear connection of ideas and use topic sentences)?
<p>Style</p> <p>Does the writing sample exhibit exceptional word usage? Does it</p> <ul style="list-style-type: none"> • include vocabulary to make explanations detailed and precise, descriptions rich, and actions clear and vivid (e.g., varied word choices, action words, appropriate modifiers, sensory details)? • demonstrate control of a challenging vocabulary? <p>Does the writing sample demonstrate exceptional writing technique?</p> <ul style="list-style-type: none"> • Is the writing exceptionally fluent? • Does it include varied sentence patterns, including complex sentences? • Does it demonstrate use of writer's techniques (e.g., literary conventions such as imagery and dialogue and/or literary genres such as humor and suspense)?
<p>Voice</p> <p>Does the writing sample demonstrate effective adjustment of language and tone to task and reader? Does it</p> <ul style="list-style-type: none"> • exhibit appropriate register (e.g., formal, personal, or dialect) to suit task? • demonstrate a strong sense of audience? • exhibit an original perspective (e.g., authoritative, lively, and/or exciting)?

NOTE: These scoring rubrics are used for students tested on the fall *ISTEP+* assessment in Grades 6–12.

Writing Applications Rubric

Grades 6–12

SCORE POINT 5
<p>A Score Point 5 paper represents a solid performance. It fully accomplishes the task, but lacks the overall level of sophistication and consistency of a Score Point 6 paper.</p>
Ideas and Content
<p>Does the writing sample fully accomplish the task (e.g., support an opinion, summarize, tell a story, or write an article)? Does it</p> <ul style="list-style-type: none"> • present a unifying theme or main idea without going off on tangents? • stay focused on topic and task? <p>Does the writing sample include many relevant ideas? Does it</p> <ul style="list-style-type: none"> • provide in-depth information and more than adequate supporting details that are developed? • explore many facets of the topic?
Organization
<p>Are the ideas in the writing sample organized logically? Does the writing</p> <ul style="list-style-type: none"> • present a meaningful, cohesive whole with a beginning, a middle, and an end (i.e., include a solid introduction and conclusion)? • progress in an order that enhances meaning of text? • include smooth transitions (e.g., use topic sentences) between sentences and paragraphs to enhance meaning of text? (Writing may have an occasional lapse.)
Style
<p>Does the writing sample exhibit very good word usage? Does it</p> <ul style="list-style-type: none"> • include vocabulary to make explanations detailed and precise, descriptions rich, and actions clear and vivid? • demonstrate control of vocabulary? <p>Does the writing sample demonstrate very good writing technique?</p> <ul style="list-style-type: none"> • Is the writing very fluent? • Does it include varied sentence patterns, including complex sentences? • Does it demonstrate use of writer's techniques (e.g., literary conventions such as imagery and dialogue and/or literary genres such as humor and suspense)?
Voice
<p>Does the writing sample demonstrate effective adjustment of language and tone to task and reader? Does it</p> <ul style="list-style-type: none"> • exhibit appropriate register (e.g., formal, personal, or dialect) to suit task? • demonstrate a sense of audience? • exhibit an original perspective (e.g., authoritative, lively, and/or exciting)?

NOTE: These scoring rubrics are used for students tested on the fall *ISTEP+* assessment in Grades 6–12.

Writing Applications Rubric

Grades 6–12

SCORE POINT 4	
<p>A Score Point 4 paper represents a good performance. It accomplishes the task, but generally needs to exhibit more development, better organization, or a more sophisticated writing style to receive a higher score.</p>	
Ideas and Content	
<p>Does the writing sample accomplish the task (e.g., support an opinion, summarize, tell a story, or write an article)? Does it</p> <ul style="list-style-type: none"> • present a unifying theme or main idea? (Writing may include minor tangents.) • stay mostly focused on topic and task? <p>Does the writing sample include relevant ideas? Does it</p> <ul style="list-style-type: none"> • include sufficient information and supporting details? (Details may not be fully developed; ideas may be listed.) • explore some facets of the topic? 	
Organization	
<p>Are the ideas in the writing sample organized logically? Does the writing</p> <ul style="list-style-type: none"> • present a meaningful whole with a beginning, a middle, and an end despite an occasional lapse (e.g., a weak introduction or conclusion)? • generally progress in an order that enhances meaning of text? • include transitions between sentences and paragraphs to enhance meaning of text? (Transitions may be rough, although some topic sentences are included.) 	
Style	
<p>Does the writing sample exhibit good word usage? Does it</p> <ul style="list-style-type: none"> • include vocabulary that is appropriately chosen, with words that clearly convey the writer's meaning? • demonstrate control of basic vocabulary? <p>Does the writing sample demonstrate good writing technique?</p> <ul style="list-style-type: none"> • Is the writing fluent? • Does it exhibit some varied sentence patterns, including some complex sentences? • Does it demonstrate an attempt to use writer's techniques (e.g., literary conventions such as imagery and dialogue and/or literary genres such as humor and suspense)? 	
Voice	
<p>Does the writing sample demonstrate an attempt to adjust language and tone to task and reader? Does it</p> <ul style="list-style-type: none"> • generally exhibit appropriate register (e.g., formal, personal, or dialect) to suit task? (The writing may occasionally slip out of register.) • demonstrate some sense of audience? • attempt an original perspective? 	

NOTE: These scoring rubrics are used for students tested on the fall *ISTEP+* assessment in Grades 6–12.

Writing Applications Rubric

Grades 6–12

SCORE POINT 3	
A Score Point 3 paper represents a performance that minimally accomplishes the task. Some elements of development, organization, and writing style are weak.	
Ideas and Content	
<p>Does the writing sample minimally accomplish the task (e.g., support an opinion, summarize, tell a story, or write an article)? Does it</p> <ul style="list-style-type: none"> • attempt a unifying theme or main idea? • stay somewhat focused on topic and task? <p>Does the writing sample include some relevant ideas? Does it</p> <ul style="list-style-type: none"> • include some information with only a few details, or list ideas without supporting details? • explore some facets of the topic? 	
Organization	
<p>Is there an attempt to logically organize ideas in the writing sample? Does the writing</p> <ul style="list-style-type: none"> • have a beginning, a middle, or an end that may be weak or absent? • demonstrate an attempt to progress in an order that enhances meaning? (Progression of text may sometimes be unclear or out of order.) • demonstrate an attempt to include transitions? (Are some topic sentences used? Are transitions between sentences and paragraphs weak or absent?) 	
Style	
<p>Does the writing sample exhibit ordinary word usage? Does it</p> <ul style="list-style-type: none"> • contain basic vocabulary, with words that are predictable and common? • demonstrate some control of vocabulary? <p>Does the writing sample demonstrate average writing technique?</p> <ul style="list-style-type: none"> • Is the writing generally fluent? • Does it contain mostly simple sentences (although there may be an attempt at more varied sentence patterns)? • Is it generally ordinary and predictable? 	
Voice	
<p>Does the writing sample demonstrate an attempt to adjust language and tone to task and reader? Does it</p> <ul style="list-style-type: none"> • demonstrate a difficulty in establishing a register (e.g., formal, personal, or dialect)? • demonstrate little sense of audience? • generally lack an original perspective? 	

NOTE: These scoring rubrics are used for students tested on the fall *ISTEP+* assessment in Grades 6–12.

Writing Applications Rubric

Grades 6–12

SCORE POINT 2
<p>A Score Point 2 paper represents a performance that only partially accomplishes the task. Some responses may exhibit difficulty maintaining a focus. Others may be too brief to provide sufficient development of the topic or evidence of adequate organizational or writing style.</p>
Ideas and Content
<p>Does the writing sample only partially accomplish the task (e.g., support an opinion, summarize, tell a story, or write an article)? Does it</p> <ul style="list-style-type: none"> • attempt a main idea? • sometimes lose focus or ineffectively display focus? <p>Does the writing sample include few relevant ideas? Does it</p> <ul style="list-style-type: none"> • include little information and few or no details? • explore only one or two facets of the topic?
Organization
<p>Is there a minimal attempt to logically organize ideas in the writing sample?</p> <ul style="list-style-type: none"> • Does the writing have only one or two of the three elements: beginning, middle, and end? • Is the writing sometimes difficult to follow? (Progression of text may be confusing or unclear.) • Are transitions weak or absent (e.g., few or no topic sentences)?
Style
<p>Does the writing sample exhibit minimal word usage? Does it</p> <ul style="list-style-type: none"> • contain limited vocabulary? (Some words may be used incorrectly.) • demonstrate minimal control of vocabulary? <p>Does the writing sample demonstrate minimal writing technique?</p> <ul style="list-style-type: none"> • Does the writing exhibit some fluency? • Does it rely mostly on simple sentences? • Is it often repetitive, predictable, or dull?
Voice
<p>Does the writing sample demonstrate language and tone that may be inappropriate to task and reader? Does it</p> <ul style="list-style-type: none"> • demonstrate use of a register inappropriate to the task (e.g., slang or dialect in a formal setting)? • demonstrate little or no sense of audience? • lack an original perspective?

NOTE: These scoring rubrics are used for students tested on the fall *ISTEP+* assessment in Grades 6–12.

Writing Applications Rubric

Grades 6–12

SCORE POINT 1
<p>A Score Point 1 paper represents a performance that fails to accomplish the task. It exhibits considerable difficulty in areas of development, organization, and writing style. The writing is generally either very brief or rambling and repetitive, sometimes resulting in a response that may be difficult to read or comprehend.</p>
Ideas and Content
<p>Does the writing sample fail to accomplish the task (e.g., support an opinion, summarize, tell a story, or write an article)? Is it</p> <ul style="list-style-type: none"> • difficult for the reader to discern the main idea? • too brief or too repetitive to establish or maintain a focus? <p>Does the writing sample include very few relevant ideas?</p> <ul style="list-style-type: none"> • Does it include little information with few or no details or unrelated details? • Is it unsuccessful in attempts to explore any facets of the prompt?
Organization
<p>Are the ideas in the writing sample organized illogically?</p> <ul style="list-style-type: none"> • Does it have only one or two of the three elements: beginning, middle, or end? • Is it difficult to follow, with the order possibly difficult to discern? • Are transitions weak or absent (e.g., without topic sentences)?
Style
<p>Does the writing sample exhibit less than minimal word usage? Does it</p> <ul style="list-style-type: none"> • contain limited vocabulary, with many words used incorrectly? • demonstrate minimal or less than minimal control of vocabulary? <p>Does the writing sample demonstrate less than minimal writing technique? Does it</p> <ul style="list-style-type: none"> • lack fluency? • demonstrate problems with sentence patterns? • consist of writing that is flat and lifeless?
Voice
<p>Does the writing sample demonstrate language and tone that may be inappropriate to task and reader? Does it</p> <ul style="list-style-type: none"> • demonstrate difficulty in choosing an appropriate register? • demonstrate a lack of a sense of audience? • lack an original perspective?

NOTE: These scoring rubrics are used for students tested on the fall *ISTEP+* assessment in Grades 6–12.

WRITING: Written English Language Conventions

In addition to assessing student writing skills through application of the Language Conventions Rubric (see page 33) to extended student writing, *ISTEP+* also assesses the same skills through discrete (stand-alone) selected-response items.

For Numbers 20 and 21, choose the sentence that is correct and MOST clearly expressed.

- 20** A The banjo can be more difficult than to play the guitar.
B More difficult than to play the guitar can be playing the banjo.
C To play the banjo can be more difficult than playing the guitar.
✓ D Playing the banjo can be more difficult than playing the guitar.
- 21** A Falling asleep in my chair, the cannons of the *1812 Overture* suddenly made me open my eyes.
✓ B Falling asleep in my chair, I suddenly opened my eyes when I heard the cannons of the *1812 Overture*.
C Falling asleep in my chair, my eyes suddenly opened when I heard the cannons of the *1812 Overture*.
D The cannons of the *1812 Overture*, after falling asleep in my chair, suddenly made me open my eyes.

For Number 22, decide which punctuation mark is needed in the sentence.

- 22** I ate too much at the class picnic; consequently I was not surprised when I felt ill afterward.
- A ;
B :
C .
✓ D ,

For Number 23, choose the word that is spelled correctly.

- 23** The company showed a _____ profit.
- ✓ A substantial
B substantiel
C substantiul
D substantiol



Mathematics

GRADE 8 INDIANA ACADEMIC STANDARDS

☐ **Number Sense**

Students know the properties of rational and irrational numbers expressed in a variety of forms. They understand and use exponents, powers, and roots.

☐ **Computation**

Students compute with rational numbers expressed in a variety of forms. They solve problems involving ratios, proportions, and percentages.

☐ **Algebra and Functions**

See the Algebra I Indiana Academic Standards on the next page.

☐ **Geometry**

Students deepen their understanding of plane and solid geometric shapes and properties by constructing shapes that meet given conditions, by identifying attributes of shapes, and by applying geometric concepts to solve problems.

☐ **Measurement**

Students convert between units of measure and use rates and scale factors to solve problems. They compute the perimeter, area, and volume of geometric objects. They investigate how perimeter, area, and volume are affected by changes of scale.

☐ **Data Analysis and Probability**

Students collect, organize, represent, and interpret relationships in data sets that have one or more variables. They determine probabilities and use them to make predictions about events.

☐ **Problem Solving**

Students make decisions about how to approach problems and communicate their ideas. Students use strategies, skills, and concepts in finding and communicating solutions to problems. Students determine when a solution is complete and reasonable and move beyond a particular problem by generalizing to other situations.

ALGEBRA I INDIANA ACADEMIC STANDARDS

- ☐ **Operations with Real Numbers**
Students simplify and compare expressions. They use rational exponents, and simplify square roots.
- ☐ **Linear Equations and Inequalities**
Students solve linear equations and inequalities in one variable. They solve word problems that involve linear equations, inequalities, or formulas.
- ☐ **Relations and Functions**
Students sketch and interpret graphs representing given situations. They understand the concept of a function and analyze the graphs of functions.
- ☐ **Graphing Linear Equations and Inequalities**
Students graph linear equations and inequalities in two variables. They write equations of lines and find and use the slope and y -intercept of lines. They use linear equations to model real data.
- ☐ **Pairs of Linear Equations and Inequalities**
Students solve pairs of linear equations using graphs and using algebra. They solve pairs of linear inequalities using graphs. They solve word problems involving pairs of linear equations.
- ☐ **Polynomials**
Students add, subtract, multiply, and divide polynomials. They factor quadratics.
- ☐ **Algebraic Fractions**
Students simplify algebraic ratios and solve algebraic proportions.
- ☐ **Quadratic, Cubic, and Radical Equations**
Students graph and solve quadratic and radical equations. They graph cubic equations.
- ☐ **Mathematical Reasoning and Problem Solving**
Students use a variety of strategies to solve problems. Students develop and evaluate mathematical arguments and proofs.

Calculator Usage

Calculators are not required on *ISTEP+*. All items in *ISTEP+* can be solved without the use of a calculator. Calculators are allowed on indicated sections of the Mathematics Assessment.

General directions for calculator usage on *ISTEP+*.

- Calculators may be used on only those sections of *ISTEP+* where calculator use is designated (unless otherwise stated in a student's IEP, in which case the student would be allowed to use a calculator on the entire test).
- Sharing calculators is **not** allowed.
- Students are to use calculators with which they are familiar.
- Where calculator use is designated, students are to use their best judgment as to when to use the calculator. The calculator is meant to aid in problem solving, not get in the way.
- For open-ended items, students should write down the process for solving the problem, then use the calculator to do the actual computation.
- Students will be allowed to use their own calculator unless it is on the **Not permitted on *ISTEP+*** list. To see the list of calculators that are not permitted, look on the *ISTEP+* InfoCenter located at www.doe.state.in.us/istep.

Calculators are not allowed on some items in *ISTEP+*. These items are similar to items in this sampler which are designated by the following icon:



The items that are **not** designated as No Calculator items in this sampler may appear on either the calculator or non-calculator sections of the Mathematics Assessment.

Mathematics Reference Sheet

The *ISTEP+* Grades 9 and 10 Mathematics Reference Sheet is located on pages 63 and 64 after the sample items. The reference sheet is always available to students when they take the tests.

When the reference sheet icon, shown below, appears with an item, it indicates to the student that there is information on the reference sheet that will be useful for solving the item.



Sample Test Items

Number Sense

This standard assesses a student's ability to understand and use various aspects of number theory, including scientific notation, square roots, exponents, and rational and irrational numbers.



1 Which of the following is another way to write 5^{-3} ?

- ✓ **A** $\frac{1}{125}$
- B** 125
- C** -125
- D** $-\frac{1}{125}$



2 Evaluate: $\frac{3^5 \times 3^2}{3^3}$

			8	1	
	0	1	2	3	4
5	6	7	8	9	0
1	2	3	4	5	6
7	8	9	0	1	2
3	4	5	6	7	8
9	0	1	2	3	4
5	6	7	8	9	0
1	2	3	4	5	6
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5	6	7	8	9	0
1	2	3	4	5	6
7					

Computation

This standard assesses a student's ability to perform multi-step computations with integers, fractions, and decimals.

- 3** Look at the two advertisements for cat kennels shown below.

Meow Mansion

Cat Kennel
\$15 per day per cat

Cat Castle

Cat Kennel
\$50 for the first day,
\$16 for each additional day.
No charge for second cat.

Gerry has 2 cats and will need to board them both for 3 days.

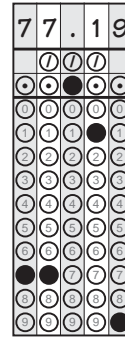
What is the difference in price between boarding the cats at Meow Mansion and Cat Castle?

- A \$6.00
✓ B \$8.00
C \$24.00
D \$37.00

- 4** Margie deposits a total of \$325 in her bank account.



How much interest will she earn in 5 years if she deposits no more money and the money in the account earns 4.75% simple interest?



Algebra and Functions

This standard assesses a student's ability to express relationships using algebraic terminology, expressions, equations, inequalities, and graphs.



5 Solve for x : $2(x - 3) = 3x + 1$

- A -1
- B -3
- C -4
- ✓ D -7



6 What is the value of $(q^3)^2 + qr^2$ when $q = 3$ and $r = 5$?

8	0	4		
1	1	1		
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
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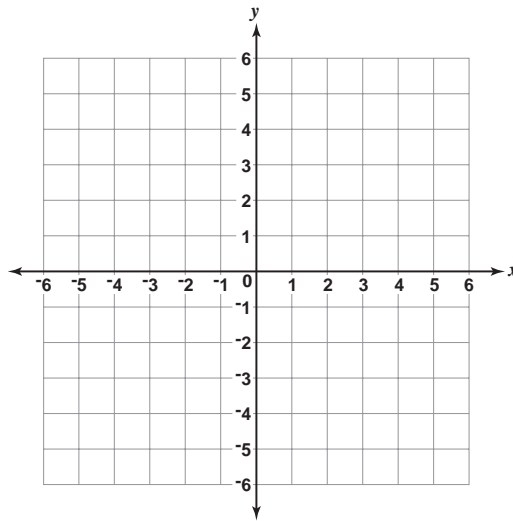
7 Simplify: $\frac{9x^2y^4 + 6x^4y^3 - 3x^3y^5}{3x^2y^3}$

- A $6x^4y^7 + 2x^6y^6 - 3x^5y^8$
- B $3x^2y^4 + 2x^4y^3 - x^3y^5$
- C $9y + 6x^2 - 3xy^2$
- ✓ D $3y + 2x^2 - xy^2$

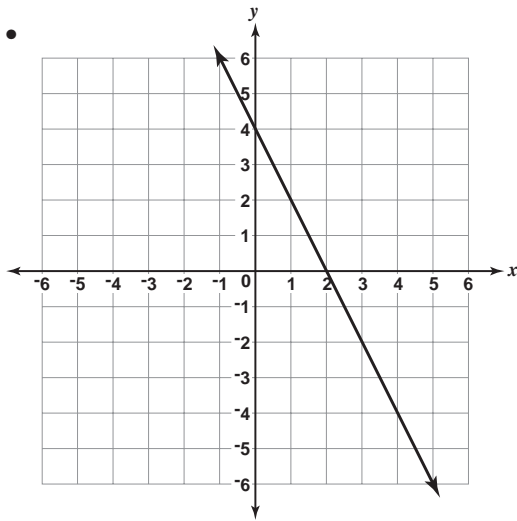


8

Graph the equation $4x + 2y = 8$ on the coordinate plane below.



Exemplary Response:



NOTE: If more than one line is drawn, a score of 0 points will be awarded.

Rubric:

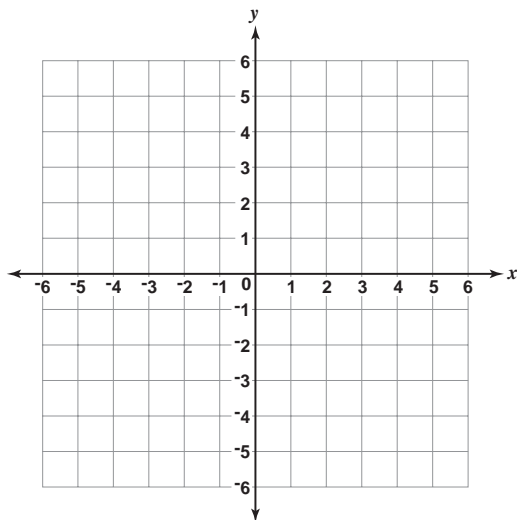
- 2 points** Exemplary response
- 1 point** Correct slope of -2 with line drawn
OR
Correct x -intercept of 2 or y -intercept of 4 with line drawn
OR
Correct slope of -2 and correct x -intercept of 2 or y -intercept of 4 indicated, but no line drawn
- 0 points** Other



- 9** Look at the system of equations below.

$$y = x - 3$$
$$y = -2x + 6$$

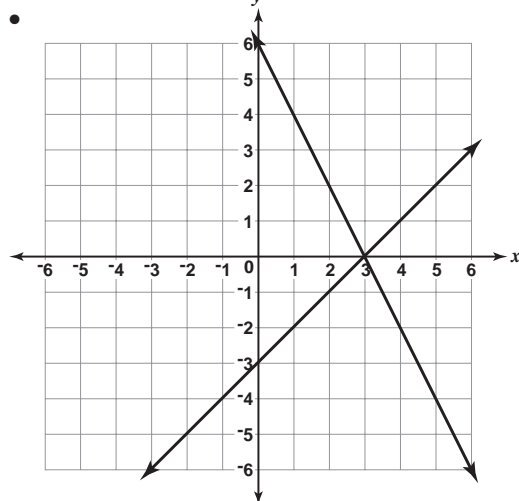
Graph the system of equations on the coordinate plane below.



What is the solution of the two equations?

Answer _____

Exemplary Response:



AND

- $(3, 0)$

Rubric:

- 2 points** Exemplary response
- 1 point** One correct component
- 0 points** Other

NOTE: Award credit for correct interpretation of an incorrect graph.



10 What is the slope of the line that passes through points $(-3, 0)$ and $(4, 5)$?



A $\frac{7}{5}$

B $-\frac{7}{5}$

✓ **C** $\frac{5}{7}$

D $-\frac{5}{7}$



11 Look at the system of equations below.

$$\begin{aligned}y &= x - 2 \\ 3y + 5x &= 10\end{aligned}$$

What is the solution to the system of equations?

A $(0, 2)$

✓ **B** $(2, 0)$

C $(\frac{1}{2}, 1\frac{1}{2})$

D $(1\frac{1}{2}, \frac{1}{2})$

- 12** Misha owes a fine at the library for returning a book and a videotape late. The sign below lists the fines charged by the library.

Library Fines	
Books	\$0.25 per day
Videotapes	\$2.00 per day

The total fine is \$13.50.

How many days late were the book and the videotape if each was late the same number of days?

Show All Work

Answer _____ days

Exemplary Response:

- 6 days

Sample Process:

- $13.50 = (0.25 + 2.00)x$
 $13.50 = 2.25x$
 $x = 6$

OR

- Other valid process

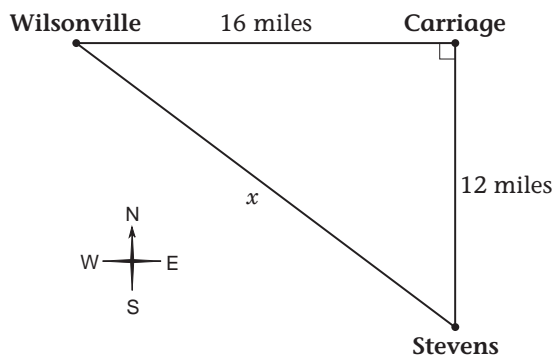
Rubric:

- | | |
|-----------------|--|
| 2 points | Exemplary response |
| 1 point | Correct complete process; error in computation |
| 0 points | Other |

Geometry

This standard assesses a student's ability to understand and use the principles of two- and three-dimensional geometric figures.

- 13** Wilsonville is 16 miles due west of Carriage, and Stevens is 12 miles due south of Carriage.

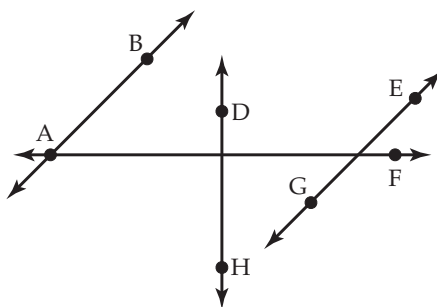


The shortest distance between Wilsonville and Stevens is represented by x in the diagram above.

To the nearest mile, what is the distance, x , from Wilsonville to Stevens?

- A 400 miles
- B 200 miles
- C 28 miles
- ✓ D 20 miles

- 14** Look at the diagram below.



Which of the following lines appears to be a perpendicular bisector?

- A \overleftrightarrow{AF}
- ✓ B \overleftrightarrow{DH}
- C \overleftrightarrow{AB}
- D \overleftrightarrow{EG}

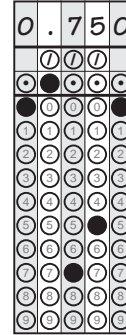
Measurement

This standard assesses a student's ability to compare units of measure, understand and use rates and scale factors to solve problems, and compute perimeter, area, and volume of two- and three-dimensional shapes.

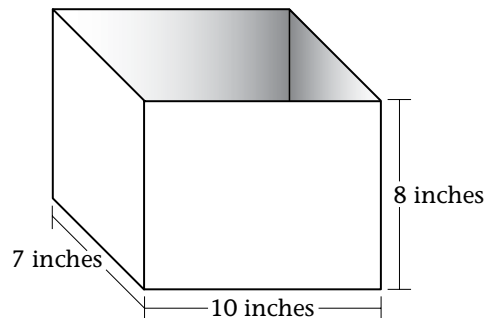
- 15** Toni has a container that holds 750 milliliters of water.



How many LITERS is 750 milliliters?



- 16** Brenda is preparing a bid to paint the 5 inside surfaces of some containers without lids. She has to find the surface areas of the containers to determine how much paint she will need. Each container is 10 inches long, 7 inches wide, and 8 inches tall.

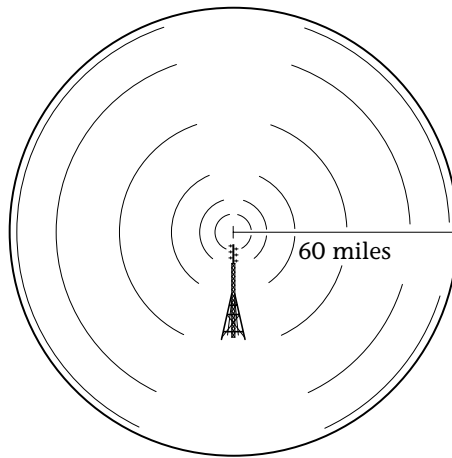


How many square inches of surface will she paint on each container?

- A 222 square inches
- B 238 square inches
- ✓ C 342 square inches
- D 560 square inches

17

An advertising committee plans to air announcements for a triathlon on the local radio station. The radio signal reaches the area shown in the picture below.



What is the area covered, in square miles, by the radio signal?

Show All Work

Answer _____ square miles

Exemplary Response:

- 11,304 or $3,600\pi$ square miles

Sample Process:

- Area = $3.14 (60^2)$
 $= 3.14 (3,600)$
 $= 11,304$

OR

- Other valid process

Rubric:

- 2 points** Exemplary response
- 1 point** Correct complete process; error in computation
- 0 points** Other

Data Analysis and Probability

This standard assesses a student's ability to organize, analyze, and represent data, and to determine probabilities.

- 18** The Griffins are buying a new car. They have their choice of 4 different exterior colors, 3 different interior colors, and 3 different entertainment systems.

If they choose 1 color for the exterior, 1 color for the interior, and 1 entertainment system, how many combinations are possible?

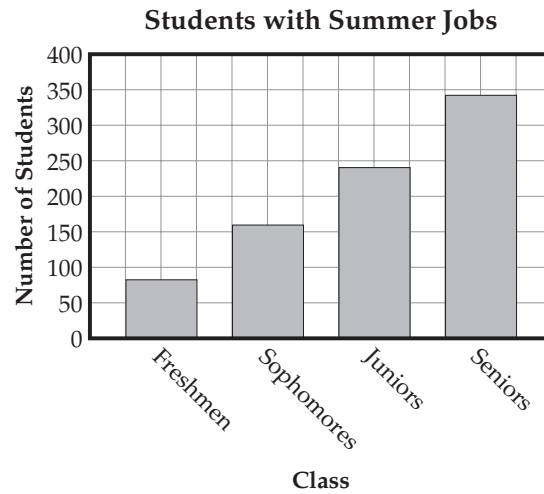
				3	6
	1	1	1		
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

- 19** Casey has a small bag of assorted jellybeans. The bag contains 4 red, 4 yellow, 6 green, and 4 black jellybeans.

If she reaches into the bag without looking and removes 1 jellybean, what is the probability that it will NOT be green?

- A $\frac{1}{3}$
 B $\frac{1}{18}$
 ✓ C $\frac{2}{3}$
 D $\frac{2}{18}$

- 20** The graph below shows the number of students, by class, who held jobs last summer.



Jeff made an incorrect statement based on the data in the graph. He stated that there were approximately twice as many seniors with summer jobs as freshmen with summer jobs.

Which class should Jeff have compared to the senior class to make the statement correct? Write your answer on the line below.

Answer _____ class

On the lines below, explain what value Jeff could have used to make the comparison between the senior class and the freshman class true.

Exemplary Response:

- Sophomore class

AND

Explanation equivalent to the following:

- Jeff could have stated that there were about 4 times as many seniors with summer jobs as freshmen with summer jobs.

OR

- Other valid explanation

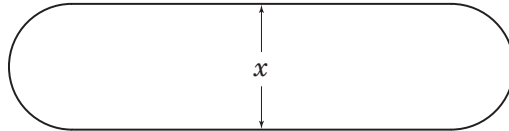
Rubric:

- | | |
|-----------------|-----------------------|
| 2 points | Exemplary response |
| 1 point | One correct component |
| 0 points | Other |

Problem Solving

This standard assesses a student's ability to select appropriate problem-solving strategies and to communicate ideas.

- 21** A park has a running trail that consists of two straight paths connected by semicircular paths on each end, as shown in the diagram below.



The length of each of the straight paths is four times as long as the distance between them. The distance around the trail is 6,684 feet.

What is the distance (x), in feet, between each of the straight paths?

Show All Work

Answer _____ feet

Exemplary Response:

- 600 feet
- AND
- Correct complete process

Sample Process:

- $8x + \pi x = 6,684$
 $11.14x = 6,684$
 $x = 600$

OR

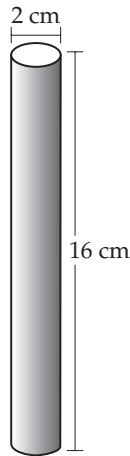
- Other valid process

Rubric:

- 2 points** Exemplary response
- 1 point** Correct answer only
- OR
- Correct complete process; error in computation
- 0 points** Other

22

Judi is making frozen juice treats. She is filling cylindrical molds like the one shown below.



What portion of a liter is in one mold?

Show All Work

Answer _____ liter

Exemplary Response:

- 0.05 liter

AND

- Correct complete process

Sample Process:

- Cylinder volume =
 $\pi r^2 h = \pi (1)^2 (16) = 16\pi = 50.24$
 $50.24 \div 1000 = 0.05024$

OR

- Other valid process

Rubric:

3 points Exemplary response

2 points Correct answer only

OR

Correct complete process; error in computation

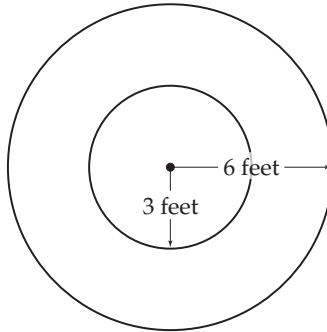
1 point Correctly determines volume in cubic centimeters

0 points Other

23



Sheri is planning a probability experiment. Without looking, she will toss a dart toward two concentric circles painted on the ground, as shown in the diagram below. The dart must land somewhere within the circles.



A classmate thinks that the probability the dart WILL land in the smaller circle is $\frac{1}{2}$ because the radius of the outer circle is twice the length of the inner circle.

On the lines below, without solving for the actual probability, explain why this cannot be true.

Now find the probability that the dart WILL NOT land in the smaller circle.

Show All Work

Answer _____

Exemplary Response:

- Explanation equivalent to the following:

This cannot be true because when you use lengths to compare areas, you have to square the length first. So the probability would not be $\frac{1}{2}$, it would be $\frac{9}{36}$ or $\frac{1}{4}$.

OR

- Other valid explanation

AND

- Correct complete process

Sample Process:

- Probability of NOT landing in the smaller circle = $1 - \text{probability of landing in it}$
Probability of landing in the smaller circle = $3^2\pi \div 6^2\pi = 9 \div 36 = 0.25$
Probability of NOT landing in the smaller circle = $1 - 0.25 = 0.75$

OR

- Other valid process

AND

- 0.75 or $\frac{3}{4}$

OR








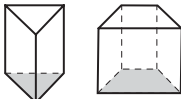
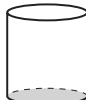



- Other valid probability

NOTE: Award credit for correct complete process with an error in computation.

Rubric:

- | | |
|-----------------|------------------------|
| 3 points | Exemplary response |
| 2 points | Two correct components |
| 1 point | One correct component |
| 0 points | Other |

ISTEP+ Grades 9 and 10 Mathematics Reference Sheet

Shape		Formulas for Area (A) and Circumference (C)	
Triangle		$A = \frac{1}{2}bh = \frac{1}{2} \times \text{base} \times \text{height}$	
Rectangle		$A = lw = \text{length} \times \text{width}$	
Trapezoid		$A = \frac{1}{2}(b_1 + b_2) \times h = \frac{1}{2} \times \text{sum of bases} \times \text{height}$	
Parallelogram		$A = bh = \text{base} \times \text{height}$	
Square		$A = s^2 = \text{side} \times \text{side}$	
Circle		$A = \pi r^2 = \pi \times \text{square of radius}$ $C = 2\pi r = 2 \times \pi \times \text{radius}$ $\pi \approx 3.14 \text{ or } \frac{22}{7}$	
Figure		Formulas for Volume (V) and Surface Area (SA)	
Rectangular Prism		$V = lwh = \text{length} \times \text{width} \times \text{height}$ $SA = 2lw + 2hw + 2lh$ $= 2(\text{length} \times \text{width}) + 2(\text{height} \times \text{width}) + 2(\text{length} \times \text{height})$	
General Prisms		$V = Bh = \text{area of base} \times \text{height}$ $SA = \text{sum of the areas of the faces}$	
Cylinder		$V = \pi r^2 h = \pi \times \text{square of radius} \times \text{height}$ $SA = 2\pi r^2 + 2\pi r h$ $= 2 \times \pi \times \text{square of radius} +$ $2 \times \pi \times \text{radius} \times \text{height}$	$\pi \approx 3.14$ or $\pi \approx \frac{22}{7}$
Sphere		$V = \frac{4}{3}\pi r^3 = \frac{4}{3} \times \pi \times \text{cube of radius}$ $SA = 4\pi r^2 = 4 \times \pi \times \text{square of radius}$	
Right Circular Cone		$V = \frac{1}{3}\pi r^2 h = \frac{1}{3} \times \pi \times \text{square of radius} \times \text{height}$	
Regular Pyramid		$V = \frac{1}{3}Bh = \frac{1}{3} \times \text{area of base} \times \text{height}$	

Equation of a Line

Slope-Intercept Form:

$$y = mx + b$$

where m = slope and b = y -intercept

Point-Slope Form:

$$y - y_1 = m(x - x_1)$$

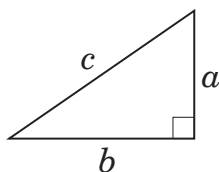
where m = slope and (x_1, y_1) is a point on a line

Slope of a Line

Let (x_1, y_1) and (x_2, y_2) be two points in the plane.

$$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1} \text{ where } x_2 \neq x_1$$

Pythagorean Theorem



$$a^2 + b^2 = c^2$$

Distance Formula

$$d = rt$$

where d = distance, r = rate, and t = time

Temperature Formulas

$$^{\circ}\text{C} = \frac{5}{9}(F - 32)$$

$$^{\circ}\text{Celsius} = \frac{5}{9} \times (^{\circ}\text{Fahrenheit} - 32)$$

$$^{\circ}\text{F} = \frac{9}{5}\text{C} + 32$$

$$^{\circ}\text{Fahrenheit} = \frac{9}{5} \times ^{\circ}\text{Celsius} + 32$$

Simple Interest Formula

$$i = prt$$

where i = interest, p = principal,

r = rate, and t = time

Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

where $ax^2 + bx + c = 0$, $a \neq 0$, and $b^2 - 4ac \geq 0$

Conversions

1 yard = 3 feet = 36 inches

1 mile = 1,760 yards = 5,280 feet

1 acre = 43,560 square feet

1 hour = 60 minutes

1 minute = 60 seconds

1 liter = 1000 milliliters = 1000 cubic centimeters

1 meter = 100 centimeters = 1000 millimeters

1 kilometer = 1000 meters

1 gram = 1000 milligrams

1 kilogram = 1000 grams

1 cup = 8 fluid ounces

1 pint = 2 cups

1 quart = 2 pints

1 gallon = 4 quarts

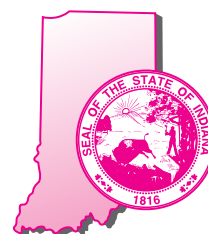
1 pound = 16 ounces

1 ton = 2,000 pounds

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